



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,440	06/26/2003	John Robert Lockemeyer	TH-1808 US	2927

7590 02/28/2008  
Richard F. Lemuth  
Shell Oil Company  
Intellectual Property Services  
P. O. Box 2463  
Houston, TX 77252-2463

EXAMINER
----------

HAILEY, PATRICIA L

ART UNIT	PAPER NUMBER
----------	--------------

1793

MAIL DATE	DELIVERY MODE
-----------	---------------

02/28/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

---

*Ex parte* JOHN ROBERT LOCKEMEYER,  
RANDALL CLAYTON YEATES, and  
DONALD REINALDA

---

Appeal 2008-0096  
Application 10/606,440  
Technology Center 1700

---

Decided: February 28, 2008

---

Before THOMAS A. WALTZ, CATHERINE Q. TIMM, and  
JEFFREY T. SMITH, *Administrative Patent Judges*.

SMITH, *Administrative Patent Judge*.

DECISION ON APPEAL

1 This is an appeal under 35 U.S.C. § 134 from a final rejection of claims 1-9 and 11-25. Claims 26-38 have been withdrawn from consideration. We have jurisdiction under 35 U.S.C. § 6.

We AFFIRM.

### BACKGROUND OF THE INVENTION

Appellants' invention relates to a method for improving the selectivity of a supported highly selective epoxidation catalyst. The claimed method requires contacting the catalyst or a precursor of the catalyst with a feed comprising oxygen at a catalyst temperature above 250°C and subsequently decreasing the catalyst temperature to a value of at most 250°C. According to the Specification, the selectivity of a highly selective epoxidation catalyst is improved by heat treating the catalyst in the presence of oxygen at a temperature that is typically above that catalyst's normal operation temperature. (Spec. 3). Claim 1, as presented in the Brief, appears below:

1. A method for improving the selectivity of a supported highly selective epoxidation catalyst comprising silver in a quantity of at most 0.17 g per m<sup>2</sup> surface area of the support and further comprising one or more selectivity enhancing dopants selected from rhenium, molybdenum, and tungsten, which method comprises

- contacting the catalyst, or a precursor of the catalyst comprising the silver in cationic form, with a feed comprising oxygen at a catalyst temperature above 250°C for a duration of at least 0.5 hours and up to 150 hours, and
- subsequently decreasing the catalyst temperature to a value of at most 250°C.

The Examiner relies on the following reference in rejecting the appealed subject matter:

Hayden

4,007,135

Feb. 8, 1977

The Examiner has entered the following ground of rejection:

Claims 1-9 and 11-25 are rejected under 35 U.S.C. § 103(a) as obvious over Hayden.

Rather than reiterate the conflicting viewpoints advanced by the Examiner and the Appellants regarding the above-noted rejection, we make reference to the Answer (mailed April 18, 2007) for the Examiner's reasoning in support of the rejections, and to the Brief (filed January 30, 2007) for Appellants' arguments thereagainst. We affirm the stated rejection for the reasons set forth in the present record and add the following.

Appellants argue that Hayden provides a generic disclosure for the preparation of catalysts that includes many possible promoters and suitable support surfaces. (Br. 9-10). Appellants acknowledge that Hayden discloses decomposition temperatures that overlap those required by the claimed invention. However, Appellants argue that there is no generic disclosure as to the heating atmosphere or heating times. (Br. 10). Appellants argue when considering the teachings of Hayden as a whole, there is no preference to use higher decomposition temperatures over lower decomposition temperatures or vice versa when drying the catalyst and the working examples suggest lower decomposition are preferred. (Br. 10-11). In particular, Appellants rely upon a comparison of Hayden's examples (Example 7 and Example 27) to show that decomposing silver using higher temperatures with catalysts having silver densities greater than claimed in the present invention can lead to a decline in catalyst selectivity. (Br. 10-11).

The Examiner contends that Hayden discloses catalysts suitable for the production of alkylene oxides comprising 3-15% by weight of silver supported on a support having a specific surface area ranging from 0.04-10 m<sup>2</sup>/g and a median pore diameters of 0.3 to 15 microns, and further comprising one or more selectivity enhancing dopants such as molybdenum and tungsten. (Answer 3-4). The Examiner determined that the amount of silver contained in Hayden overlaps the quantity required by the claimed invention.<sup>1</sup> The Examiner determined that Hayden describes heat treating the catalyst in the presence of oxygen at temperatures that overlap 250°C. (Answer 4). The Examiner recognized that Hayden did not describe the method as having the characteristic of “improving the selectivity . . .” as described in the preamble of the claimed invention. However, the Examiner determined that Hayden employed similar method steps, conditions, and catalyst components as required by the claimed invention. (Answer 5).

---

<sup>1</sup> The Examiner in the Advisory Action, dated May 8, 2006, provided calculations for determining the density of the silver present in Hayden. Appellants have failed to present arguments contesting the Examiner's calculations and determination that the amount of silver present overlaps the amount specified in the claims.

In an obviousness analysis, we consider “not merely what the references disclose, but whether a person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, and motivated by the general problem facing the inventor, would have been led to make the combination recited in the claims.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). In the present case, Hayden, like the claimed invention, is concerned with producing catalysts suitable for the production of alkylene oxides. The person of ordinary skill in the art would have reasonably expected that the components and conditions specified in Hayden would have been suitable for the formation of catalyst for the desired objective. While Hayden does not specifically disclose the process for producing a catalyst results in the improvement of the catalyst's selectivity, Hayden does teach a person of ordinary skill in the art the process parameters and conditions required by the claimed invention. Appellants have not argued that Hayden does not describe a method for forming a supported highly selective epoxidation catalyst.

To establish the unobviousness of the claimed invention, Appellants provide a comparison of Hayden's Example 7 to Example 27 to establish there is no preference to use higher decomposition temperatures over lower decomposition temperatures.

We find the evidence proffered by the Appellants insufficient to establish the non-obviousness of the claimed subject matter. The failure of a reference to identify a preference for decomposition temperature does not detract from the teaching of the reference as a whole. The evidence relied upon does not provide either a direct or an indirect comparison between the claimed subject matter and the closest prior art, namely Hayden. *In re*

*Baxter Travenol Labs.*, 952 F.2d 388, 392 (Fed. Cir. 1991); *In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984). Also, it is not clear from the showing relied upon in the Appellants whether the claimed invention achieves unexpected results. Moreover, the examples referred to by the Appellants are not commensurate in scope with the protection sought by the appealed claims.



Appeal 2008-0096  
Application 10/606,440

In light of the foregoing and for the reasons expressed in the Answer, it is our determination that the Examiner has established a prima facie case of obviousness with respect to the argued claims on appeal that has been insufficiently rebutted by Appellants.

#### CONCLUSION

The prior art rejection of claims 1-9 and 11-25 has been affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136 (a)(1)(iv).

AFFIRMED

tf/lr

Richard F. Lemuth  
Shell Oil Company  
Intellectual Property Services  
P. O. Box 2463  
Houston, TX 77252-2463